

Claims

1. Ferritic Cr-contained steel comprising C of 0.03% or less, Mn of 5.0% or less, Cr of 6 to 40%, N of 0.03% or less, Si of 5% or less, and W of 2.0% to 6.0% in percent by mass, and Fe and inevitable impurities as the remainder, wherein precipitated W is 0.1% or less in percent by mass, and an average thermal expansion coefficient between 20°C and 800°C is less than 12.6×10^{-6} /°C.
2. The ferritic Cr-contained steel according to claim 1, further comprising at least one selected from a group of Nb of 1% or less, Ti of 1% or less, Zr of 1% or less, Al of 1% or less, and V of 1% or less in percent by mass.
3. The ferritic Cr-contained steel according to claim 1 or 2, further comprising Mo of 5.0% or less in percent by mass.
4. The ferritic Cr-contained steel according to any one of claims 1 to 3, further comprising at least one selected from a group of Ni of 2.0% or less, Cu of 3.0% or less, and Co of 1.0% or less in percent by mass.
5. The ferritic Cr-contained steel according to any one of claims 1 to 4, further comprising at least one selected from a group of B of 0.01% or less and Mg of 0.01% or less in percent by mass.
6. The ferritic Cr-contained steel according to any one of claims 1 to 5, further comprising one or two of REM of 0.1% or less and Ca of 0.1% or less in percent by mass.

7. A manufacturing method of ferritic Cr-contained steel, wherein a composition of molten steel is adjusted to include C of 0.03% or less, Mn of 5.0% or less, Cr of 6 to 40%, and N of 0.03% or less,

Si of 5% or less and W of 2.0% to 6.0% in percent by mass, and Fe and inevitable impurities as the remainder; and then the molten steel is formed into a steel slab; and then the slab is hot-rolled and then subjected to hot-rolled-sheet annealing at a hot-rolled-sheet annealing temperature of 950 to 1150°C and descaling; and furthermore, the hot rolled and annealed sheet is cold-rolled and then subjected to finish annealing at a finish annealing temperature of 1020°C to 1200°C, so that precipitated W is 0.1% or less in percent by mass.

8. The manufacturing method of ferritic Cr-contained steel according to claim 7, wherein the composition of the molten steel further includes at least one selected from a group of Nb of 1% or less, Ti of 1% or less, Zr of 1% or less, Al of 1% or less, and V of 1% or less in percent by mass.

9. The manufacturing method of ferritic Cr-contained steel according to claim 7 or 8, wherein the composition of the molten steel further includes Mo of 5.0% or less in percent by mass.

10. The manufacturing method of ferritic Cr-contained steel according to any one of claims 7 to 9, wherein the composition of the molten steel further includes at least one selected from a group of Ni of 2.0% or less, Cu of 3.0% or less, and Co of 1.0% or less in percent by mass.

11. The manufacturing method of ferritic Cr-contained steel according to any one of claims 7 to 10, wherein the composition of

the molten steel further includes at least one selected from a group of B of 0.01% or less and Mg of 0.01% or less in percent by mass.

12. The manufacturing method of ferritic Cr-contained steel according to any one of claims 7 to 11, wherein the composition of the molten steel further includes one or two of REM of 0.1% or less and Ca of 0.1% or less in percent by mass.